

Position on Use of Diesel Generation
Xcel Energy Split Rock to Lakefield Jct 345 kV Project
Grant Stevenson, Project Manager, March 4, 2005

Xcel Energy does not plan to use and does not support the use of diesel standby generators during the construction of the Split Rock to Lakefield Junction 345 kV line or other transmission lines. We do not know of a situation where temporary standby generators have been installed during the reconstruction of a transmission line. We have provided information on the use of diesel generation in our response to IR 11 and in this document solely because the question has been asked by the Environmental Quality Board staff and others.

Standby generators work well for small commercial applications when used to backup critical operations. In these situations the generators are usually paired with a battery-powered uninterruptible power supply (UPS). When utility power is lost, the UPS provides power to the load until the generators can automatically start, ramp up to full output and power the load.

Twenty two 1.6 MW generators would be needed to provide backup to Elk Substation. Connecting and successfully operating such an array of generation would require significant engineering and investment in temporary substation equipment (\$1 million).

Xcel Energy views the use of diesel generation during construction of this project to be very problematic and an unnecessary expense given the alternative available (the Modified I-90 Route). The use of diesel generators-- even in standby mode -- would add almost \$4 million to the cost of the project.

The table below provides a breakdown of estimated costs to install and operate diesel generation in various configurations that have been discussed. Not included in the table are the additional costs to obtain and comply with air emission permits. We have not had discussions with the Pollution Control Agency and do not know whether the PCA would grant a permit for such an installation and what permit conditions would be imposed.

Note	Option	345 Line Costs	Generator Rental	Fuel	Substation	Subtotal Generator Option	Total	Incremental Cost Relative to Modified I-90 Route
	Modified I-90 Route	\$ 51,025,000					\$ 51,025,000	
	Alliant Route (with Option B)	\$ 58,549,000					\$ 58,549,000	\$ 7,524,000
1	Alliant with Standby Generation	\$ 58,549,000	\$ 2,400,000	\$ 400,000	\$ 1,000,000	\$ 3,800,000	\$ 62,349,000	\$ 11,324,000
2	Alliant with Continuous Minimum Generator Output	\$ 58,549,000	\$ 4,900,000	\$ 6,000,000	\$ 1,000,000	\$ 11,900,000	\$ 70,449,000	\$ 19,424,000
3	Alliant with Continuous Full Generator Output	\$ 58,549,000	\$ 4,900,000	\$ 17,800,000	\$ 1,000,000	\$ 23,700,000	\$ 82,249,000	\$ 31,224,000

This table does not include probable additional costs to obtain and comply with air emission permits.

Notes:

- Standby Generation -- Generation started after outage to customers occurs. Customer load would be switched to match load to generation, and load would be restored in approximately 1 hour. This option would reduce the length of a long outage. Fuel costs assume 100 hours of operation.
- Continuous Minimum Generation -- The minimum load level to avoid damage to a diesel engine is 25% load. This is not a viable option because generators operating at minimum cannot respond quickly enough when utility power is lost. As a result, there is a mismatch of load to generation and the control system would shut down the deisels. Consequently, there would still be a delay of approximately 1 hour before service could be restored.
- Continuous Full Generation -- Generation feeds the load continuously allowing for seamless service in event of outage. The remaining 161 kV transmission line provides the N-1 reliability redundancy.